



# ESCI ENVIROSERVICES, INC.

4401 ATLANTIC AVENUE  
SUITE 200  
LONG BEACH, CA 90807

PHONE: 562-984-2079  
FAX: 562-984-2001  
[www.enviroservices.com](http://www.enviroservices.com)

Electronic Chrome and Grinding Co., Inc.  
9128-9132 Dice Road  
Santa Fe Springs, CA 90670

05 November 2006  
06ESCI-ECGC/HWC-01

Attention: Ed Kruck

**SUBJECT: HAZARDOUS WASTE TANK SYSTEM ASSESSMENT FOR  
ACID/CHROME HAZARDOUS WASTE TREATMENT SYSTEM**

Dear Mr. Kruck:

On 18 April 2006, ESCI EnviroServices conducted visual assessments of the condition of the hazardous waste treatment system located at the Electronic Chrome and Grinding Co., Inc. facility at 9128-9132 Dice Road, Santa Fe Springs, California. This assessment was performed to assist Electronic Chrome in demonstrating the tank system's integrity and fitness for use for the hazardous waste acid/chrome treatment system operating under Permit by Rule authorization. ESCI EnviroServices performed this assessment pursuant to Title 22 California Code of Regulations (CCR) §66265.192 'Design and Installation of New Tank Systems or Components.' In accordance with this regulation, the owner or operator must obtain a written assessment reviewed and certified by an independent, qualified, professional engineer, registered in California in accordance with §66270.11(d) attesting that the system has sufficient structural integrity, is acceptable for the transferring, storing and treating of hazardous waste, and that the tanks and containment system are suitably designed to achieve the requirements of this article.

The engineering certification statements are attached as Attachment A.

## **1. METHODOLOGY**

Electronic Chrome facility personnel provided information and described the process flow for the waste acid treatment system. Descriptions of the system, waste treatment processes and system operation information was also obtained from the October 1991 "Electronic Chrome – Chrome Precipitation and Evaporation System Operation and Maintenance Manual" developed by the system designer, KRC Associates. As noted during the evaluation, the waste treatment system utilizes a treated water recycling/reuse system, and no longer performs treated water evaporation. Visual assessments of the system including all tanks and connecting piping were performed by Hugh Davis, P.E., (Mechanical) and Oscar Malkhoo, P.E., (Chemical), both registered professional engineers in the State of California.

Mssrs. Davis and Malkhoo measured the dimensions of the secondary containment system that encloses the waste acid treatment system and inspected the containment for signs of leakage, corrosion, decomposition, pitting or any degradation that might lead to failure of the secondary containment system to function as designed.

Mssrs. Davis and Malkhoo evaluated the tank foundations, tanks, pumps, and piping to assess the adequacy of design and structural strength to prevent collapse or rupture during normal operations or foreseeable seismic event.

It should be noted that this evaluation was a visual assessment of the tanks and associated piping and fitness for continued use as part of the waste acid treatment system. Accordingly, the evaluation was not a determination or quantitative assessment of whether there have been past leaks from the system, or current, non visually-apparent leaks or damage to the tanks and piping system.

## **2. DESCRIPTION OF THE WASTE ACID TREATMENT SYSTEM**

The Electronic Chrome treatment system has been in operation since 1993 and collects waste hydrochloric acid containing hexavalent chromium ( $\text{pH} < 2.0$ ; hexavalent chromium  $> 5.0 \text{ mg/L}$ ) from the acid stripping tank via manual pumping to the WT1 acid/chrome holding tank. The waste acid/chrome is pumped from WT1 to the two chamber WT2 chrome reduction and precipitation tank, where the waste is neutralized by addition of magnesium hydroxide and hexavalent chromium is reduced to trivalent chromium, and then precipitated via addition of caustic soda and sodium hydrosulfite. The treated waste water is piped to WT3, a holding tank for addition/flash mixing of flocculent, and overflows into the WT4 holding tank for additional residence time. WT4 is pumped into the two stage clarifier, WT5, where the solid flocculate is allowed to settle. Clarified, treated waste water is pumped to the rinse water storage tank. The wet solids from the bottom of the cone-bottom clarifier tank is pumped through the plate & frame filter press, FP. The filtered water is either placed back into the WT5 clarifier, or transferred into the WT6 rinse water holding tank. All tanks and associated piping holding or treating hazardous wastes are located within a concrete secondary containment area. As noted in the attached summary, the volume of this containment system well exceeds the volume of the largest waste tank within the system.

Hazardous waste (chromium hydroxide) solids removed from the filter press are collected into a container, labeled and accumulated for off-site disposal as a hazardous waste.

A layout diagram of the system is included as Attachment B, and a summary and description of the waste treatment tanks evaluated is attached as Attachment C. The attached summary, "Fixed Treatment Unit Tank Integrity/Secondary Containment Engineering Report" also includes the specific engineering findings/evaluations by Mssrs. Davis and Malkhoo. Wall thickness was determined based on review of engineering specifications or engineering estimate via visual observation.

Daily inspections are performed. Records are maintained on site of the daily inspections.

### **3. COMPLIANCE ASSESSMENT**

#### **DESIGN STANDARDS (§66265.192(a)(1))**

Design standards for the system were not available. However, they were based on vendor information provided at the time the tank system was installed and visual observations of the system. As noted in the attached certifications, the tanks, pumps and piping system are appropriate for the intended usage and are chemically resistant to the anticipated acidic environment that is encountered when treating the waste. The materials of construction are steel, fiberglass, polyethylene and polyvinyl chloride. Based upon visual evidence of the tank exteriors and partial observation of tank interiors, it is concluded that the materials of construction comply with appropriate design standards.

#### **HAZARDOUS CHARACTERISTICS OF THE WASTE (§66265.192(a)(2))**

The hazardous characteristics of the waste treated in the waste acid treatment system are corrosivity due to the presence of hydrochloric acid, and toxicity due to hexavalent chromium.

#### **CORROSION PROTECTION (§66265.192(a)(3))**

Specific materials of construction for each component of the treatment system is contained in the attached engineering data report. The tanks have been installed above a concrete slab and concrete secondary containment has been provided. Therefore, no metal components are in direct contact with soil. External steel structural components have been cleaned and, where recommended by Mr. Davis, reinforced to provide seismic protection. Structural support and reinforcements are fabricated of steel, painted with an epoxy paint and show no current evidence of significant degradation.

#### **UNDERGROUND TANK SYSTEMS (§66265.192(a)(4))**

All tanks are installed aboveground. The area is not at risk due to vehicular traffic.

#### **STRUCTURAL DESIGN CONSIDERATIONS (§66265.192(a)(5))**

As noted in the containment certification prepared by Mr. Davis, the tank system (including pumps and piping) has been adequately designed and has sufficient structural strength to prevent collapse or rupture. It should be noted that the tank supports were recently retrofitted with steel bolts and additional bracing as a result of this 2006 Tank Certification Project. The tank foundations will maintain the load of the full tank, and all tanks are properly anchored per Zone 4 seismic requirements.

Attachment B contains the summary certification and description page for the seismic and structural evaluation.

#### **PROPER INSTALLATION OF TANK SYSTEMS (§66265.192(b))**

There are no reports available addressing observations of the tank system during the installation phase. The tanks were reportedly installed in 1992-1993 and although the operation and maintenance manual from the initial installation was reviewed for this certification, records could not be located specifically addressing the installation or design criteria in use at that time.

**BACKFILL FOR UNDERGROUND TANKS AND PIPING (§66265.192(c))**

This section is not applicable because the tanks, piping and components are not located underground.

**TIGHTNESS TESTING FOR NEW TANK SYSTEMS (§66265.192(d))**

Records were unavailable to establish that the tanks were hydrostatically tested upon initial installation. However, they have been in use in 1993 and no leaks have been reported or recorded. During the certification process, the tanks were observed to be partially full to completely full and no evidence of leaking was observed by either Hugh Davis or Oscar Malkhoo during their site evaluations.

**ANCILLARY EQUIPMENT SUPPORT AND PROTECTION (§66265.192(e))**

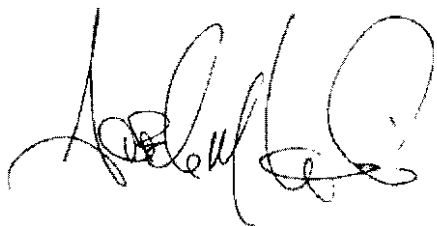
All ancillary equipment containing regulated waste including piping, pumps, valves, mixers, filter press, etc. is located within the concrete secondary containment area. Transfer pumps are anchored within the containment area and piping is affixed to concrete walls and/or steel support structures. Painted metal supporting beams and elevated work platforms have been used to reinforce ancillary equipment from vibration, thermal expansion, or seismic movement. Since the secondary containment structure has a capacity of over 2,100 gallons which exceeds the largest tank within the structure (700 gallons), plus 6 inches of rainfall, the ancillary equipment does not appear to pose a risk of spill or release to the environment.

**CORROSION PROTECTION (§66265.192(f))**

The tank system is located in a reinforced concrete containment area that is coated with a chemically resistant coating. The tanks do not contact soil and the tanks are all constructed of or lined with polyethylene or polyvinyl chloride, non-metallic materials that is not susceptible to corrosion. All piping is made from PVC.

Ed, should you or the Santa Fe Springs Fire Department require additional information, please contact me at 714-322-0470.

Sincerely,  
ESCI EnviroServices, Inc.



Steven M. Lichten, REA, CPEA, CPP  
President  
Principal Environmental Scientist

Attachment:

**ATTACHMENT A**

**ELECTRONIC CHROME AND GRINDING CO., INC.  
WASTE ACID TREATMENT SYSTEM**

**ENGINEERING CERTIFICATIONS**

## Tank and Secondary Containment Assessment Document

This document was prepared for

Company name: ELECTRONIC CHROME & GRINDING CO. INC.  
Address: 9128-32 DICE ROAD  
City, California ZIP: SANTA FE SPRINGS, CA 90670

Tank/system identification.

Chrome Reduction and Precipitation System. Tanks WT1 through WT6 and FP

Date of inspection(s)/assessment

This equipment was inspected and certified as adequate for the requirements of  
22CCR265.192 and 22CCR265.193 on July 18, 2006

I certify under penalty of law that this document and all attachments were prepared under my  
direction or supervision in accordance with a system designed to assure that qualified personnel  
properly gather and evaluate the information submitted. Based on my inquiry of the person or  
persons who manage the system, or those persons directly responsible for gathering the  
information, the information submitted is, to the best of my knowledge and belief, true,  
accurate, and complete. I am aware that there are significant penalties for submitting false  
information, including the possibility of fine and imprisonment for knowing violations.

Assessors name	Oscar Malkhoo
California PE No	CH4744
Address of assessor	342 Eliot Lane
City, State, Zip	Long Beach, CA 90814



*Oscar R. Malkhoo*  
07/18/2006

Date stamped/signed:

OSCAR MALKHOO, PE

Tel/Fax: 562.434.5017 • Pgr: 562.221-0718

342 Eliot Lane, Long Beach, CA 90814

E-mail: omalkhoo@verizon.net

### CONTAINMENT CERTIFICATION

I, Oscar Malkhoo, an independent California Registered Professional Engineer, have reviewed the entire Wastewater Treatment Plant at *Electronic Chrome & Grinding Co. Inc.*, 9128-32 Dice Road, Santa Fe Springs, CA 90670.

I certify to the best of my knowledge and belief that the tanks, piping and pumps are constructed of material that is suitable to handle the wastes that are treated at the facility. Based on the waste characterization that was presented by the facility the materials used were compatible with the wastes that the facility treats. The materials used in the tanks, pumps, and piping are steel, fiberglass, polyethylene, and polyvinyl chloride. These materials showed no erosion or corrosion at the time of the inspection.

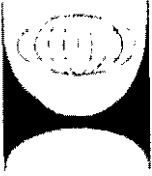
The system was determined to meet the corrosion protection requirements of CCR Title 22, 66265.192.

Based on the above assessment, I believe that the system has a remaining life of over 5 years. The facility will have an independent professional engineer re-certify this system every 5 years, and any deficiencies that are found will be corrected before certification is reissued.



*Oscar Malkhoo*  
Registered Professional Engineer

*07/18/2006*  
Date



**HUGH L. DAVIS COMPANY**  
MECHANICAL EQUIPMENT

~~1987 FREMONT AVENUE SOUTH PASADENA CALIFORNIA 91030~~

~~TELEPHONE (913) 258-7884~~

P.O. BOX 3265 SOUTH PASADENA, CA. 91031  
TEL & FAX 626-441-4343

JOB Electronic Chrome & Grinding Inc.

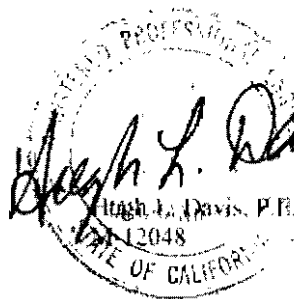
9128 Dice Road

Santa Fe Springs, CA 90670

DOCUMENT TITLE Containment Certification

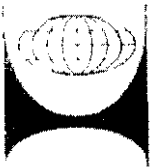
Waste Water Treatment System July 18, 2006

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Sept. 25, 2006





**HUGH L. DAVIS COMPANY**  
MECHANICAL EQUIPMENT

~~1907 FREMONT AVENUE, SOUTH PASADENA, CALIFORNIA 91030~~

~~TELEPHONE (213) 258-7884~~

P.O. Box 3265 SOUTH PASADENA, CA. 91031 TEL. - 626-441-4343

## CONTAINMENT CERTIFICATION

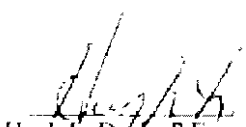
I, Hugh L. Davis, an independent California Registered Professional Engineer, have reviewed the entire Waste Water Treatment System, including all tanks and containments dedicated to wastewater treatment at: ELECTRONIC CHROME & GRINDING CO. INC. 9128 Dice Road, Santa Fe Springs, CA 90670

I certify to the best of my knowledge and belief, that the tanks, pumps and piping from the rinse tanks are not leaking, nor are they unfit for use. An assessment has been made to determine that the above equipment is adequately designed and has sufficient structural strength to prevent collapse or rupture. This assessment addresses the following as specified in CCR Title 22.66265.192.

1. Tank foundations will maintain the load of the full tank.
2. Tanks are properly anchored per Zone 4 seismic requirements.
3. No tanks were visibly leaking at the time of inspection.
4. All tanks were properly installed and are well maintained.
5. The secondary containment system will contain at least 100% of the contents of the largest tank within the area.
6. This system has been in operation since 1993.

Based on the above assessment, I believe that this system is adequate for continued service.

This certification is valid for 5 years from the date below. After that date, the system must be re-certified by an independent professional engineer in order to remain in compliance with CCR Title 22.265.192. Any deficiencies found must be corrected before re-certification can be issued.

  
Hugh L. Davis, P.E.  
Calif. M-12048



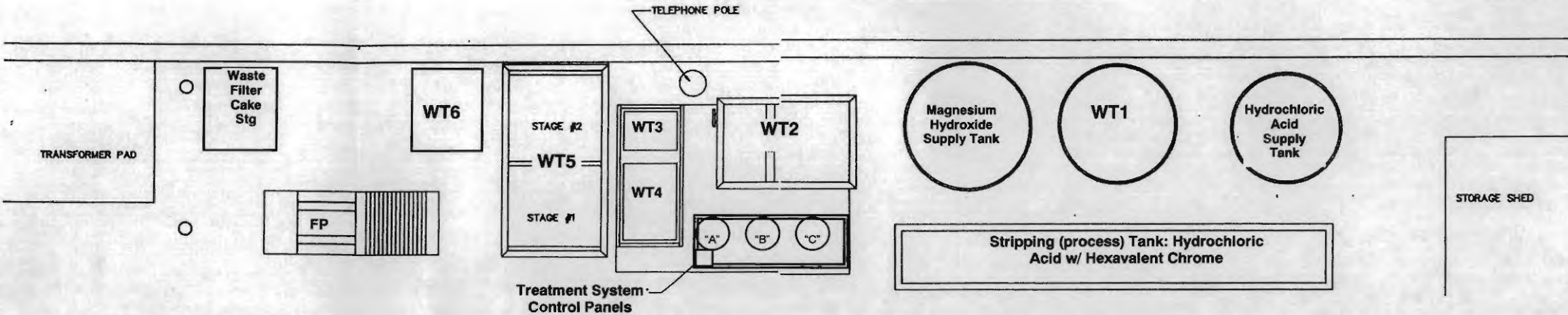
Date  July 18, 2006

**ATTACHMENT B**

**ELECTRONIC CHROME AND GRINDING CO., INC.  
WASTE ACID TREATMENT SYSTEM**

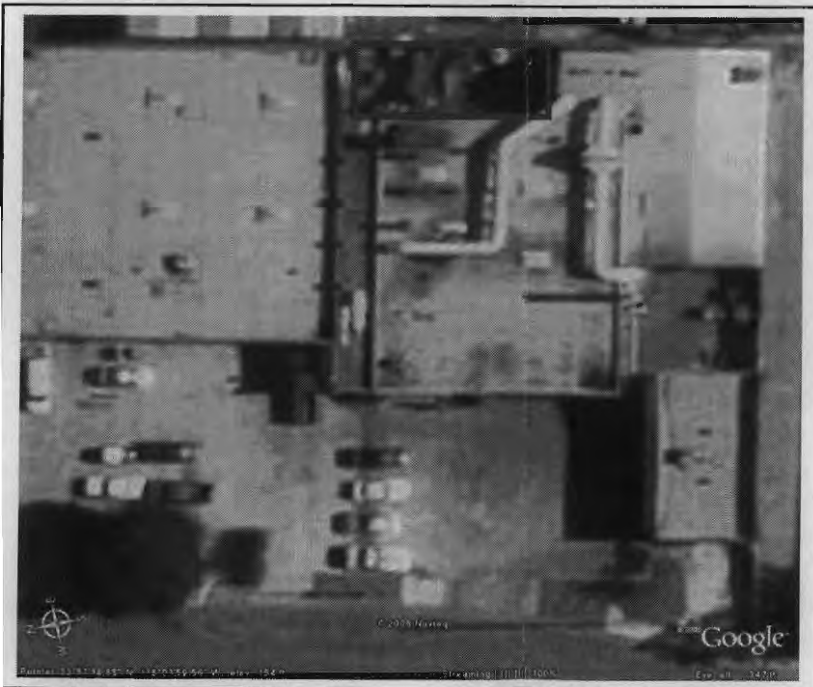
**TREATMENT SYSTEM LAYOUT**

Electronic Chrome  
9128-9132 Dice Road  
Santa Fe Springs, CA 90670



**NOTES:**

- WT1: Vertical Waste Hydrochloric Acid/Chrome Storage Tank**
- WT2: Chrome Reduction and Precipitation (magnesium hydroxide neutralization & caustic + sodium hydrosulfite addition)**
- WT3: Holding Tank for Flocculent Addition (polymer flash mix)**
- WT4: Holding Tank (flocculator)**
- WT5: Two Stage Clarifier**
- WT6: Rinse Water Storage (reused back into process)**
- FP: Filter Press**
- A: Polymer chemical drum/carboy**
- B: Sodium hydrosulfite drum/carboy**
- C: Caustic drum/carboy**



<small>DO NOT SIGN THIS FORM UNLESS YOU HAVE BEEN TRAINED TO DO SO. IF YOU HAVE BEEN TRAINED, SIGN YOUR NAME AND TITLE IN THE SPACE PROVIDED. IF YOU HAVE NOT BEEN TRAINED, DO NOT SIGN THIS FORM. IF YOU HAVE BEEN TRAINED, SIGN YOUR NAME AND TITLE IN THE SPACE PROVIDED.</small>						
NEXT ASST. MATERIAL	DATE 11/11/01	TIME 1:00 PM	BY G. B. BAKER	DATE 11/11/01	TIME 1:00 PM	BY G. B. BAKER
PROJECT NO. 91570-1			KRC ASSOCIATES INC. 1571 ECL. BLVD., UNIT K ALHAMBRA, CA 91808 (714)839-4367			
FIELD NO. 1181-2			GENERAL ABANDONMENT 1/2" = 1'-0" 2" = 2'			

**Hazardous Waste Treatment System Layout**

**ATTACHMENT C**

**ELECTRONIC CHROME AND GRINDING CO., INC.  
WASTE ACID TREATMENT SYSTEM**

**“FIXED TREATMENT UNIT TANK INTEGRITY/SECONDARY  
CONTAINMENT ENGINEERING REPORT”**

**Electronic Chrome & Grinding Co. Inc.**  
**9128-32 Dice Road**  
**Santa Fe Springs, CA 90670**  
**FIXED TREATMENT UNIT**  
**TANK INTEGRITY / SECONDARY**  
**CONTAINMENT**  
**ENGINEERING DATA REPORT**

Document Number <b>FTU Tank Cert.</b>	Page 1 of 3
Issue Date <b>July 18, 2006</b>	Rev Date <b>July 18, 2006</b>
Revised by	Rev Num <b>1</b>
Oscar Malkhoo, PE	Hugh L. Davis, PE

**Equipment Descriptions**

Equip. #	Tank Description/Configuration	Dimension LxWxH	Cap	Mat'l	Wall Thkns	Age
<b>WT1</b>	<b>Vertical Waste Storage Tank</b>	<b>4' Dia. X 5' H</b>	<b>500 Gallons</b>	<b>PE</b>	<b>3/8"</b>	<b>10 yrs</b>
Influent Desc. <b>Low pH Hydrochloric Acid and Hexavalent Chrome</b>			Ratings <b>1.5 sg</b>	Piping/Fittings <b>1" PVC Hose</b>	Leak Detect <b>Secondary Containment</b>	
Corrosion Protect <b>NA Plastic</b>	Overflow System <b>Manual Pump</b>	Damage: cracks scrapes, corrosion, punctures, repairs <b>None Observed</b>		Rem. Service Life <b>10 yrs</b>	Seismic Restraint <b>Yes</b>	

Equip. #	Tank Description/Configuration	Dimension LxWxH	Cap	Mat'l	Wall Thkns	Age
<b>WT2</b>	<b>Chrome Reduction and Precipitation</b>	<b>3' X 6' X 5' H</b>	<b>700 Gallons</b>	<b>Steel Lined</b>	<b>1/4"</b>	<b>15 yrs.</b>
Influent Desc. <b>Chrome Wastes from WT1</b>			Ratings <b>1.5 sg.</b>	Piping/Fittings <b>1" PVC Hose</b>	Leak Detect <b>Secondary Containment</b>	
Corrosion Protect <b>Liner in Tank</b>	Overflow System <b>Overflow to WT3</b>	Damage: cracks scrapes, corrosion, punctures, repairs <b>None Observed</b>		Rem. Service Life <b>10 yrs.</b>	Seismic Restraint <b>Yes</b>	

Equip. #	Tank Description/Configuration	Dimension LxWxH	Cap	Mat'l	Wall Thkns	Age
<b>WT3</b>	<b>Holding Tank for Flocculent Addition</b>	<b>3' X 2' X 20" H</b>	<b>100 Gallons</b>	<b>PE</b>	<b>1/2"</b>	<b>10 yrs</b>
Influent Desc. <b>Solution from WT2</b>			Ratings <b>1.5 sg</b>	Piping/Fittings <b>1" PVC Hose</b>	Leak Detect <b>Secondary Containment</b>	
Corrosion Protect <b>NA Plastic</b>	Overflow System <b>Overflow to WT4</b>	Damage: cracks scrapes, corrosion, punctures, repairs <b>None Observed</b>		Rem. Service Life <b>10 yrs.</b>	Seismic Restraint <b>Yes</b>	

Equip. #	Tank Description/Configuration	Dimension LxWxH	Cap	Mat'l	Wall Thkns	Age
<b>WT4</b>	<b>Holding Tank</b>	<b>2' X 1.5' 20" H</b>	<b>40 Gallons</b>	<b>PE</b>	<b>1/4"</b>	<b>10Yrs.</b>
Influent Desc. <b>Overflow from WT3</b>			Ratings <b>1.5 sg</b>	Piping/Fittings <b>1" Pvc Hose</b>	Leak Detect <b>Secondary Containment</b>	
Corrosion Protect <b>NA Plastic</b>	Overflow System <b>Overflow to WT5</b>	Damage: cracks scrapes, corrosion, punctures, repairs <b>None Observed</b>		Rem. Service Life <b>10 yrs.</b>	Seismic Restraint <b>Yes</b>	

Electronic Chrome & Grinding Co. Inc.  
 912B-32 Dice Road  
 Santa Fe Springs, CA 90670  
**FIXED TREATMENT UNIT**  
**TANK INTEGRITY / SECONDARY**  
**CONTAINMENT**  
**ENGINEERING DATA REPORT**

Document Number <b>FTU Tank Cert.</b>	Page 2 of 3
Issue Date July 18, 2006	Rev Date July 18, 2006 Rev Num 1
Issuer Oscar Malkhoo, PE	Approved by Hugh L. Davis, PE

Equip. #	Tank Description/Configuration	Dimension LxWxH	Cap	Mat'l	Wall Thkns	Age
<b>WT5</b>	<b>Clarifier</b>	7' X 3.5' X 3' H Cone 2' H	700 Gallons	Steel	3/16"	15 yrs.
Influent Desc. Solution from WT4			Ratings 1.5 sg	Piping/Fittings 1" PVC Hose	Leak Detect Secondary Containment	
Corrosion Protect None Required	Overflow System Water to WT6 Sludge to FP	Damage: cracks scrapes, corrosion, punctures, repairs None Observed		Rem. Service Life 10 yrs.	Seismic Restraint Yes	

Equip. #	Tank Description/Configuration	Dimension LxWxH	Cap	Mat'l	Wall Thkns	Age
<b>WT6</b>	<b>Rinse Water Storage</b>	64" X 28" X 30" H	200 Gallons	Steel	1/4"	15 yrs.
Influent Desc. Water from WT5			Ratings 1.5 sg	Piping/Fittings 1" PVC Hose	Leak Detect Secondary Containment	
Corrosion Protect None Required	Overflow System Overflow to WT4	Damage: cracks scrapes, corrosion, punctures, repairs None Observed		Rem. Service Life 10 yrs	Seismic Restraint Yes	

Equip. #	Tank Description/Configuration	Dimension LxWxH	Cap	Mat'l	Wall Thkns	Age
<b>FP</b>	<b>Filter Press, Horizontal</b>	8' x 3' x 4'	4 cu.ft	Mod XLPE & Steel frame	N.A.	7 y
Influent Desc. Neutral pH Metal Hydroxide Sludge, CrOH. SG ≤ 1.2			Ratings 120 psi	Piping/Fittings 1" PVC Hose	Leak Detect None	
Corrosion Protect N.A. (Plastic)	Overflow System Manual Reconciliation	Damage: cracks scrapes, corrosion, punctures, repairs None		Rem. Service Life 15 y	Seismic Restraint yes	



